

CHAPTER 3

GROUND AND VEHICLE MOUNTS

The MK 19 can be mounted on the ground or on a vehicle. The M3 tripod, the most often used ground mount, allows the gunner to fire the weapon in a stable manner from any angle. The MK 64, MOD 7, gun cradle allows the MK 19 to be mounted on any vehicle equipped for the M2 caliber .50 machine gun; this includes the 2 1/2 and 5-ton cargo trucks, high-mobility multi-purpose wheeled vehicle (HMMWV), M113-series armored personnel carrier (APC), and others. This chapter discusses both the ground-and vehicle-mounting procedures.

3-1. MK 64, MOD 7, GUN CRADLE

Use the MK 64 gun cradle to mount the MK 19 to the gun pedestal, stand, ring, or tripod. Attach the ammunition container bracket to the side plate of the cradle. In the center of the cradle is a pintle bushing and lock in which the M2 caliber .50 and M60 guns can be mounted. The front of the MK 19 is mounted on the two forward lugs of the gun cradle; the retainer pin secures the MK 19's rear. Insert the cradle stow pin to hold the cradle in a horizontal position during travel (Figure 3-1).

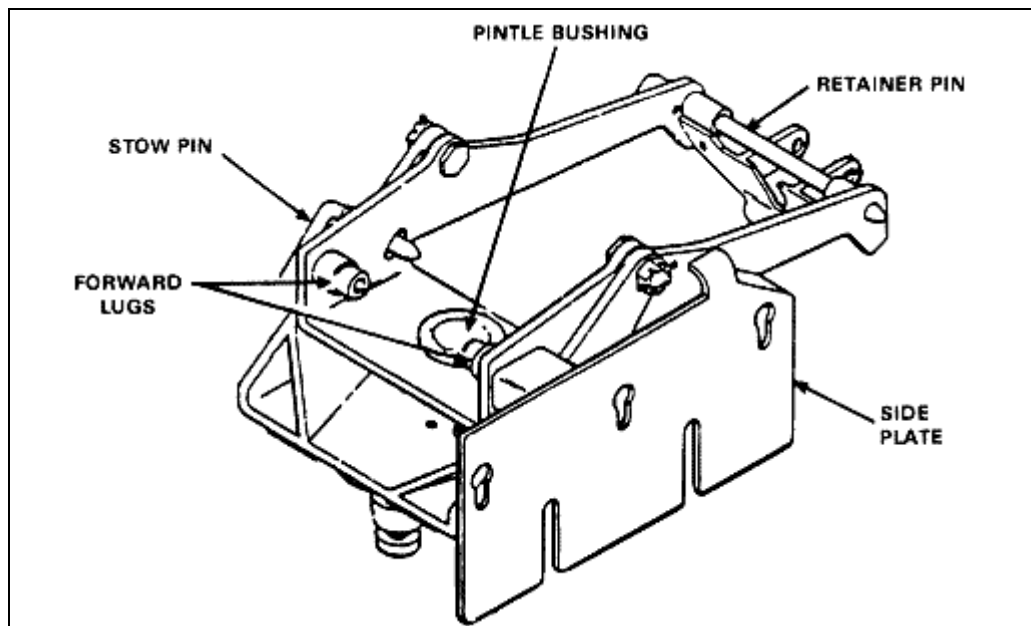


Figure 3-1. MK 64 gun cradle.

3-2. GROUND-MOUNT USING THE M3 TRIPOD

Mount the MK 19 as close to the ground as possible and lock the tripod's trail legs open. Set the adjustable front tripod leg to an angle of about 60 degrees to the ground. For example, in flat terrain with the extensions closed, use the following method to place the MK 19 about 12 inches above the ground.

- a. Set the tripod trail legs by following these procedures (Figure 3-2):

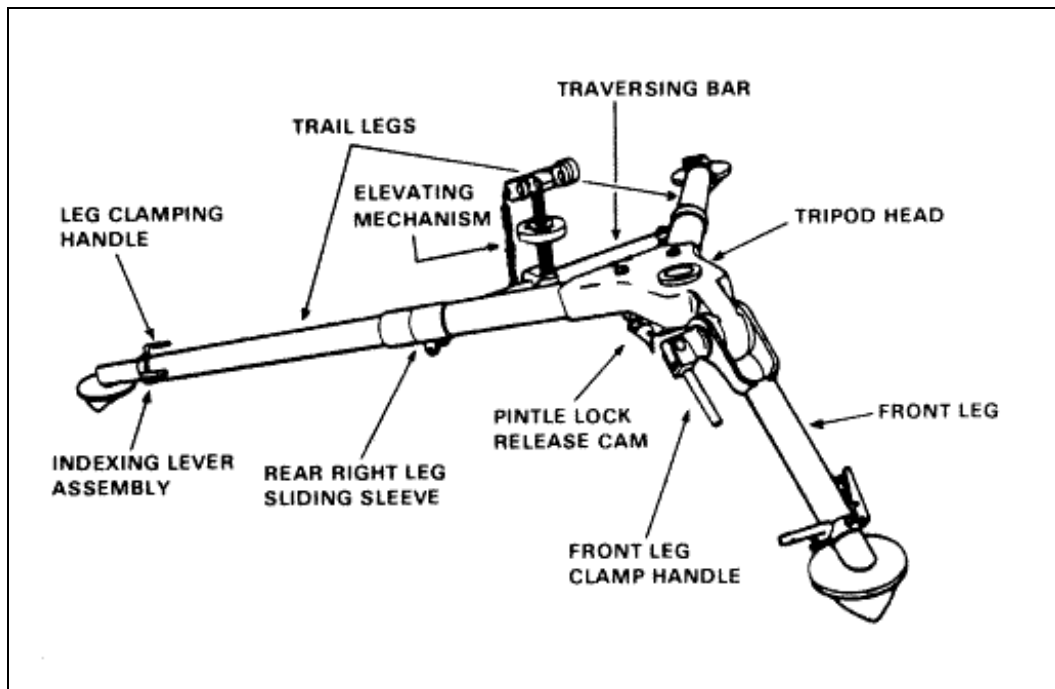


Figure 3-2. M3 tripod.

- (1) Unscrew the leg-clamping handle; press down on the indexing lever, and extend the leg to the desired length.
- (2) Align the indexing lever stud with one of the holes in the tripod leg extension.
- (3) Release pressure on the indexing lever, allowing the stud to fit the desired hole. Tighten the leg-clamping handle.
- b. Set the front leg of the tripod by following these procedures:
 - (1) Turn the front leg clamp handle counterclockwise to loosen the front leg.
 - (2) Adjust the leg to the desired angle, ensuring the tripod head is level, and tighten the front leg clamp.
- c. Secure the tripod legs by following these procedures:
 - (1) Stamp the metal shoe on each tripod leg into the ground.
 - (2) Sandbag each leg to stabilize the MK 19 for firing.
- d. Mount the M64 gun cradle onto the M3 tripod by following these procedures:
 - (1) Unlock the tripod pintle lock release cam.
 - (2) Insert the gun cradle's pintle into the tripod pintle bushing (Figure 3-3).

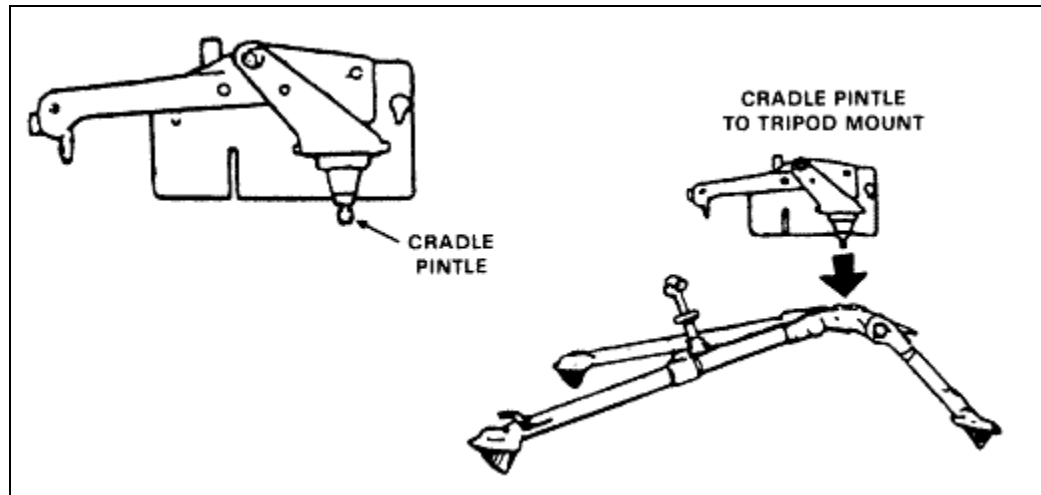


Figure 3-3. Insertion of pintle into pintle bushing.

(3) Lock the pintle lock release cam to secure the gun cradle. Check the gun cradle, by pulling up on it slightly, to ensure that it is seated and locked.

e. Attach the (traverse and elevating) T&E mechanism by following these procedures (Figure 3-4):

(1) Zero the T&E mechanism by zeroing the traversing handwheel, elevating handwheel, and the elevating mechanism sleeve to the lower elevating screw.

(a) To zero the traversing handwheel, hold the T&E mechanism so that the traversing handwheel is on the left when looking at it, then turn the traversing handwheel toward you until it stops. Loosen the locking nut slightly. Align the zero on the scale with the zero on the elevating screw yoke. Hold the scale with the zeros aligned, and tighten the locking nut. Make sure the zeros stay aligned. Turn the traversing handwheel two complete revolutions away from you. If doing this at night, count 50 “clicks” away from you.

(b) To zero the elevating handwheel to the upper elevating screw, align the two zeros. Rotate the elevating handwheel up or down until a zero with a line below it is visible on the upper elevating screw. Position the elevating handwheel so the indicator is pointing at the zero on the handwheel.

(c) Zero the elevating mechanism sleeve to the lower elevating screw. Rotate the elevating mechanism sleeve all the way up; rotate it down until it stops and note the number of complete turns. Rotate the elevating mechanism sleeve up half that number of turns. Position the slide lock lever to face you.

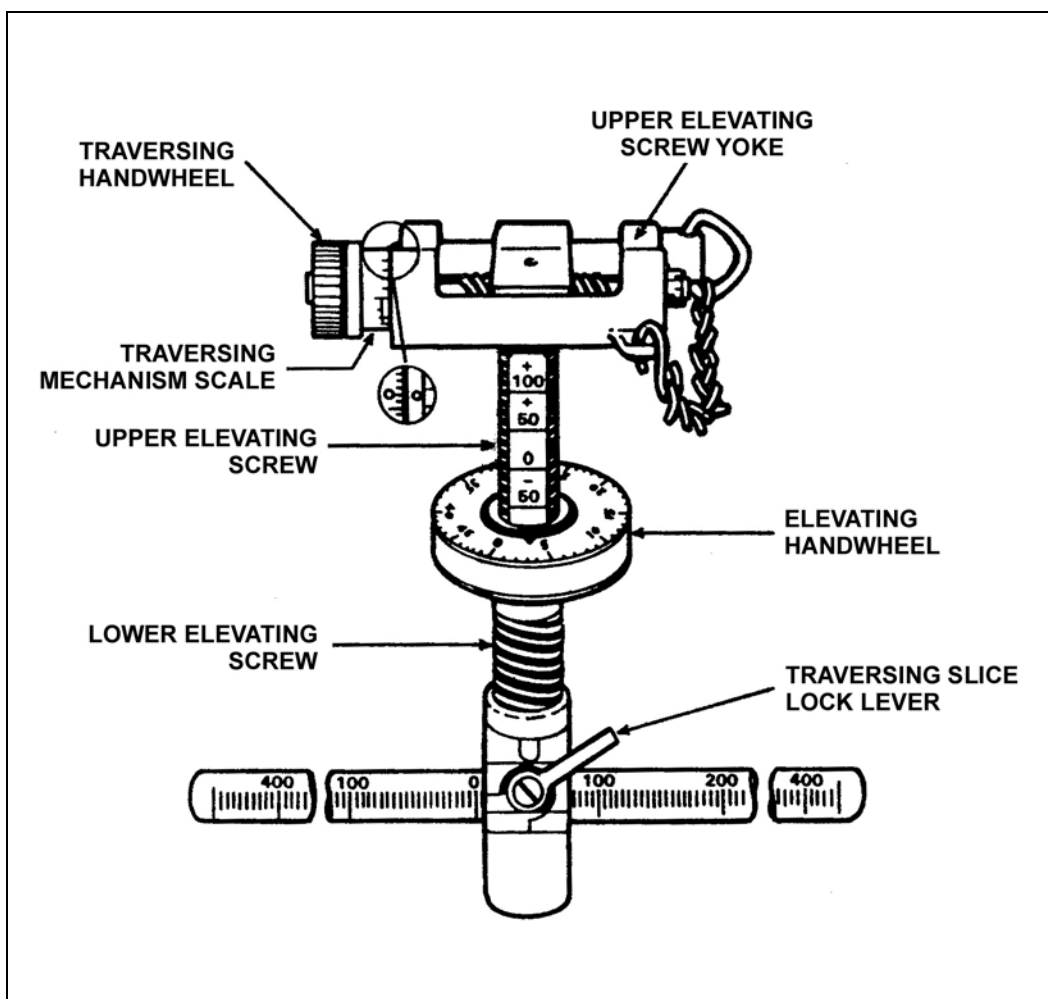


Figure 3-4. T&E mechanism.

- (2) Remove the stow pin from the gun cradle (Figure 3-5).
- (3) Align holes in the upper elevating screw yoke of the T&E mechanism with the rear holes in the gun cradle (Figure 3-6).

NOTE: The stow pin locks the cradle in a horizontal position, preventing it from depressing or elevating.

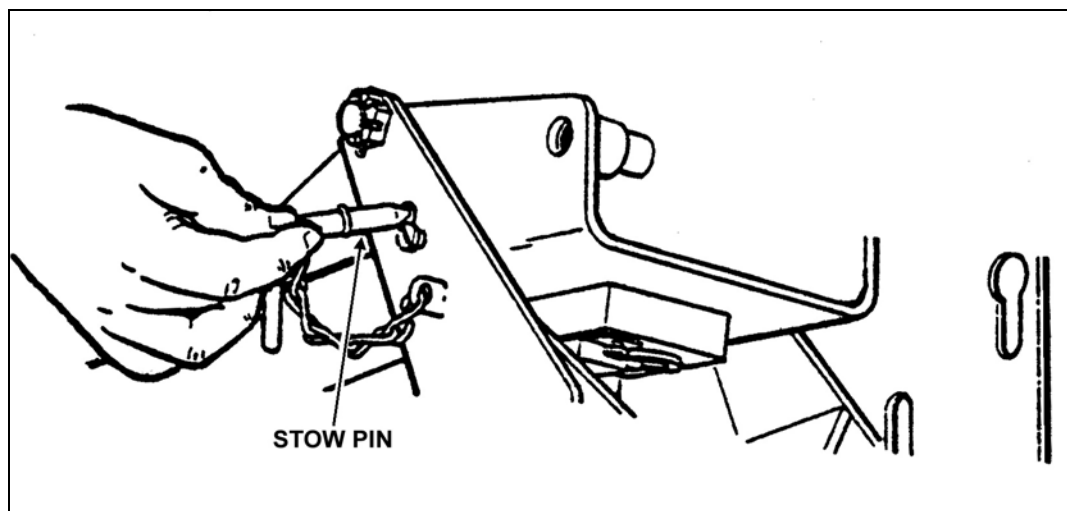


Figure 3-5. Stow pin.

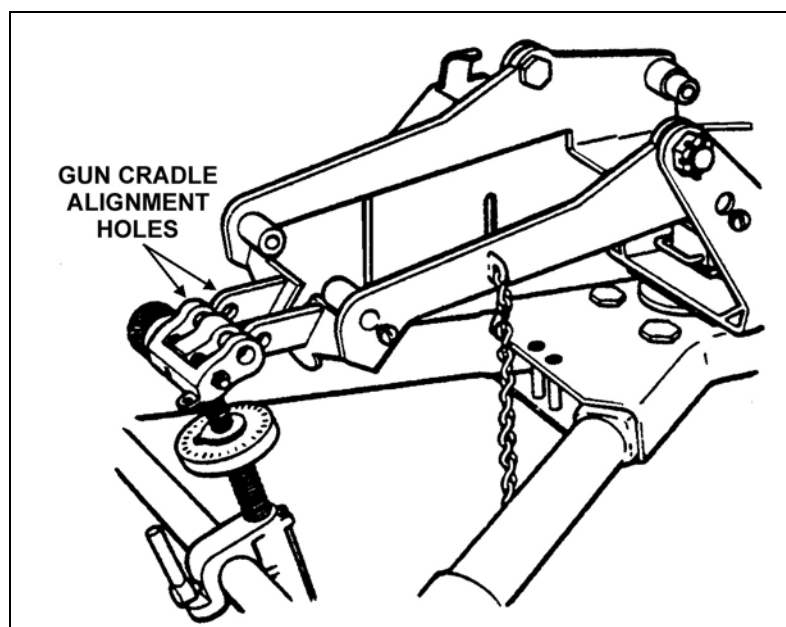


Figure 3-6. Alignment of gun cradle to T&E mechanism.

- (4) Lock the elevating sleeve mechanism onto the center of the traversing bar.
- (5) Insert the quick-release pin from the right (Figure 3-7).

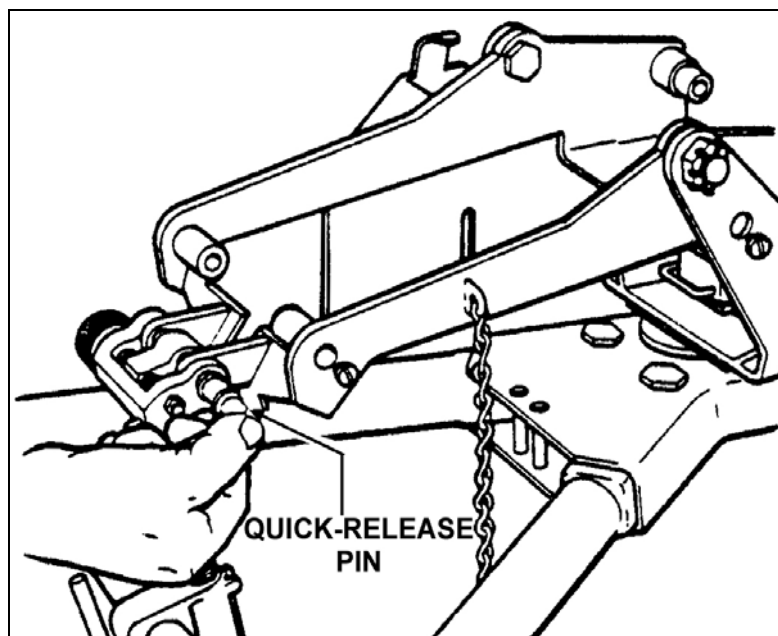


Figure 3-7. Quick-release pin.

f. Mount the MK 19 by following these procedures:

(1) Lift the MK 19 into the gun cradle. One soldier holds the barrel while another holds the control grips. The one holding the grips stands between the trail legs of the tripod; the other straddles the front leg. The soldiers lift the MK 19, barrel first, onto the cradle.

(2) Align the grooves on the receiver with the lugs in the gun cradle, and slide the receiver forward (Figure 3-8).

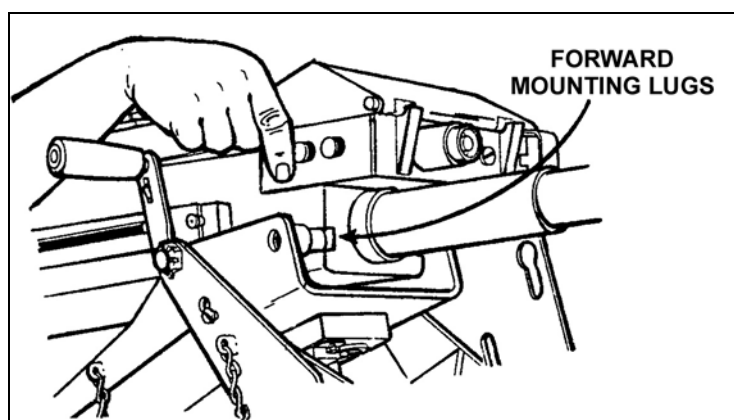


Figure 3-8. Mounting lugs.

(3) Align the sear mounting holes with the gun cradle mounting holes (Figure 3-9). Secure the rear of the receiver by inserting the retaining pin through the cradle and sear assembly and rotate it until it locks in place (Figure 3-10). If a safety clip is attached, use it to secure the retaining pin.

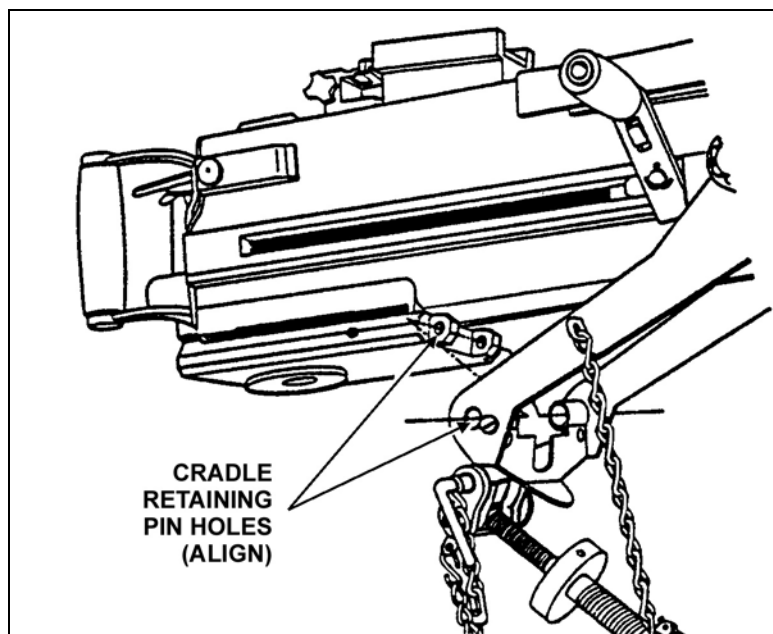


Figure 3-9. Alignment of the sear assembly and pinholes.

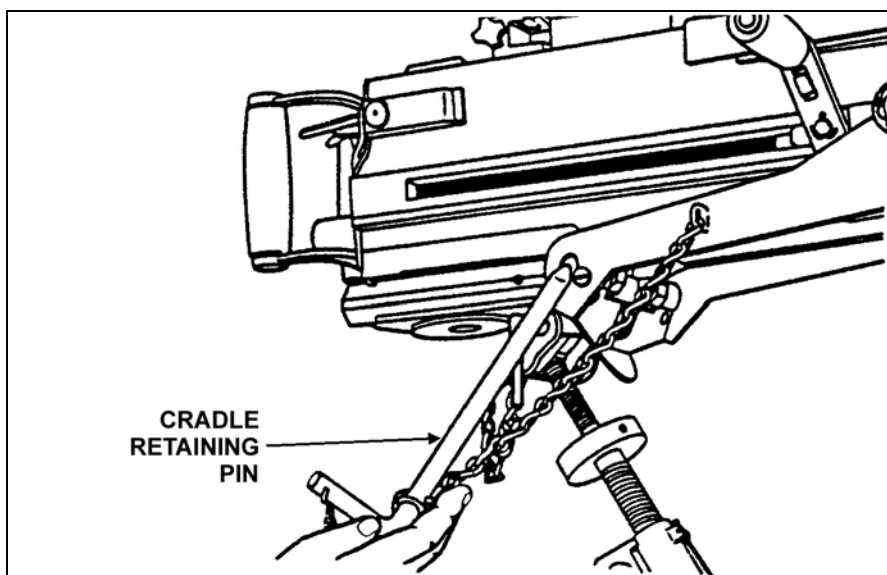


Figure 3-10. Insertion of the cradle retaining pin.

- g. Attach the feed throat to the MK 19 by following these procedures:
- (1) Squeeze together each set of grip pins (Figure 3-11).
 - (2) Attach the feed throat to the front left-hand side of the receiver assembly. The pins of the feed throat must line up with the pinholes in the receiver (Figure 3-12).
 - (3) Relax pressure on the spring-loaded grip pins so they will snap into place (Figure 3-13, page 3-9).

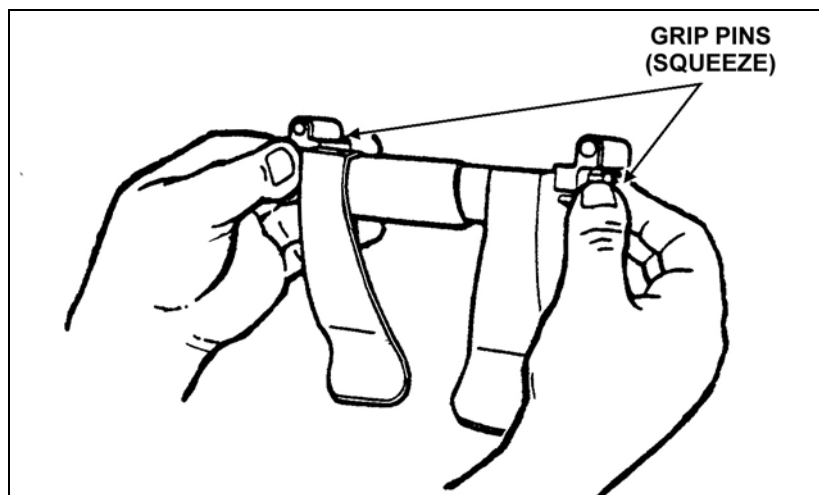


Figure 3-11. Grip pins.

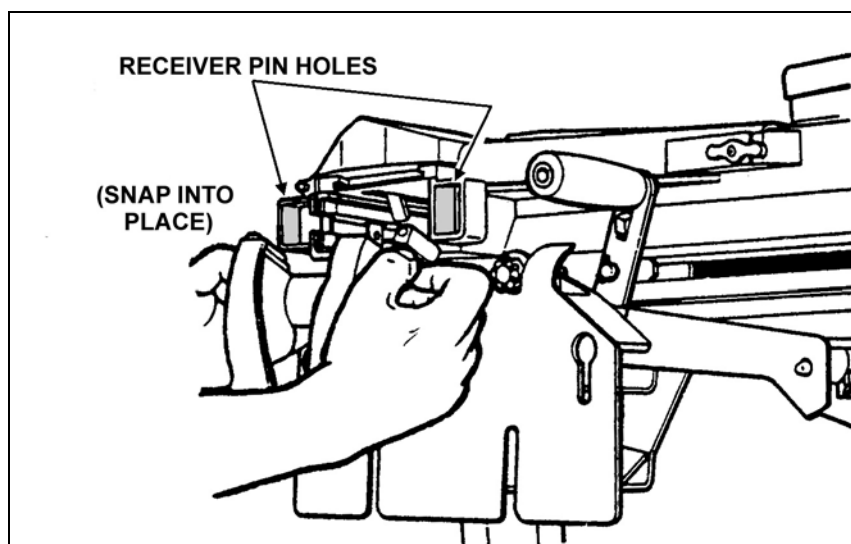


Figure 3-12. Feed throat alignment.

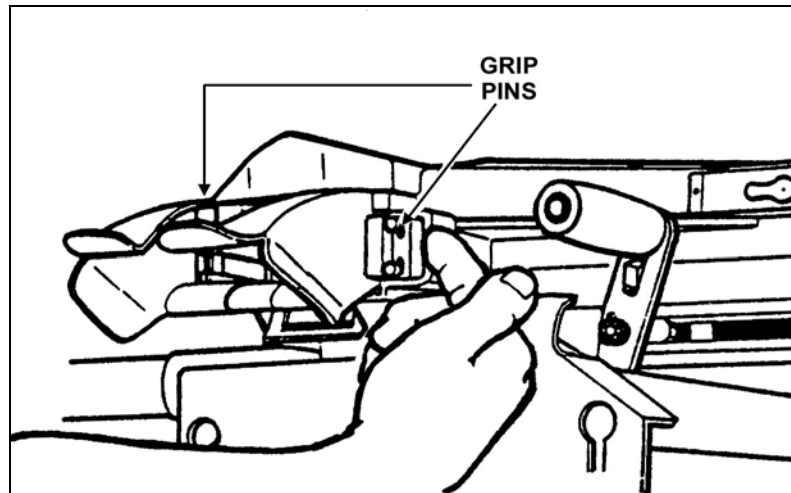


Figure 3-13. Feed throat installation.

- NOTE:**
1. When the MK 19 is mounted on the M3 tripod or any vehicle, it is called a weapon system.
 2. The same procedure is used to mount the MK 19 to the gun cradle regardless of the type of mount used.

3-3. VEHICLE-MOUNT

This section lists the accessories used and outlines the steps to mount the MK 19 onto vehicles. Since mounting procedures for vehicles vary little, this section explains in detail how to mount the MK 19 on the HMMWV and highlights the differences in mounting procedures for other vehicles.

a. **Accessories.** Mounting the MK 19 on vehicles requires several accessories.

(1) **Gun Cradle.** The MK 64 gun cradle is used to mount the MK 19 onto any vehicle having a pedestal mount for the M2 machine gun.

(2) **Pintle Adapter.** The pintle adapter is used to mount the MK 19 in all vehicular modes (Figure 3-14). Other accessories are used to mount the MK 19 to specific vehicles. The upper end accepts the gun cradle's pintle, which is secured by a quick-release pin. The lower end of the adapter fits the mounting wells on the M4 pedestal, HMMWV weapon platform, M36A2 ring mount with M66 ring, and commander's cupola on the M113 APC.

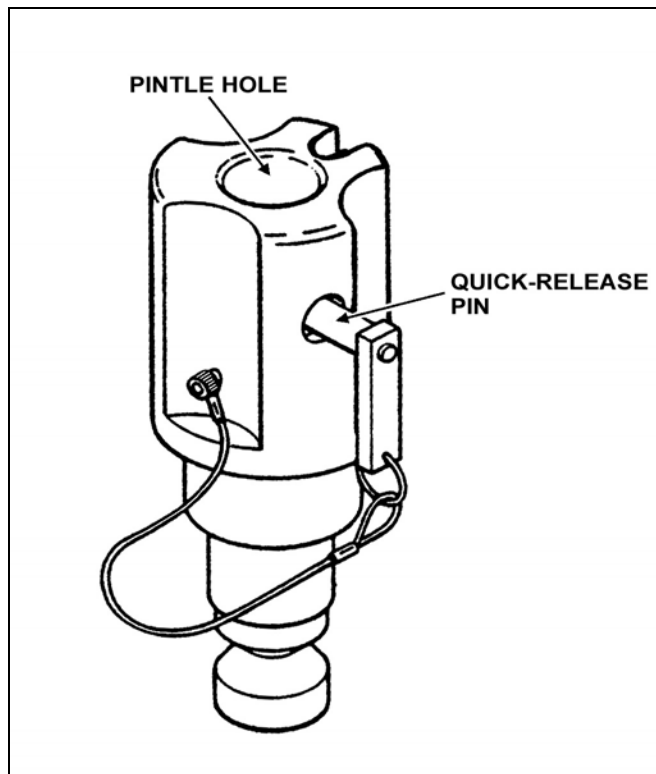


Figure 3-14. Pintle adapter.

(3) ***Train and Elevating Assembly.*** This assembly secures the MK 64 gun cradle to the M4 pedestal or HMMWV weapon platform pedestal and allows directional adjustments. The lower end of the train and elevating assembly is attached to the pedestal by a train lock clamp. The clamp is released or locked in position by a train lock handle. Two positioning clamps are supplied to prevent vertical movement of the train lock clamp on the M4 pedestal. When used on the HMMWV weapon platform pedestal, *only one clamp is needed above the train lock clamp*. The upper end of the train and elevating assembly is a standard caliber .50 T&E mechanism and it is attached to the lower rear holes in the M4 cradle by a retaining pin (Figure 3-15).

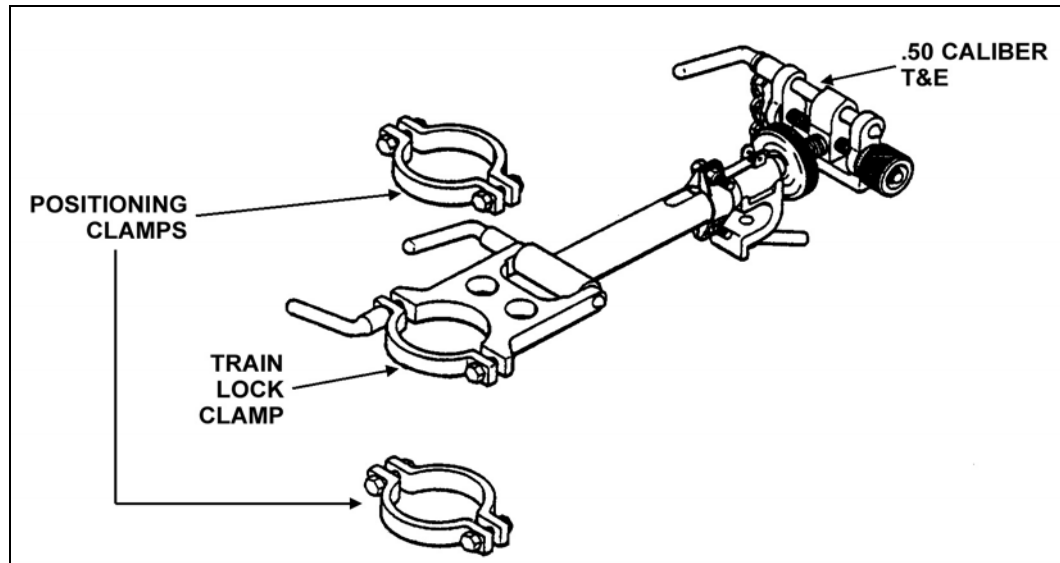


Figure 3-15. Train and elevating assembly.

(4) **Travel Lock Adapter.** This adapter is used to hold the gun cradle securely during travel. It is attached to the gun cradle by a retaining pin, which is inserted through the gun cradle train and elevating mechanism mounting holes (Figure 3-16).

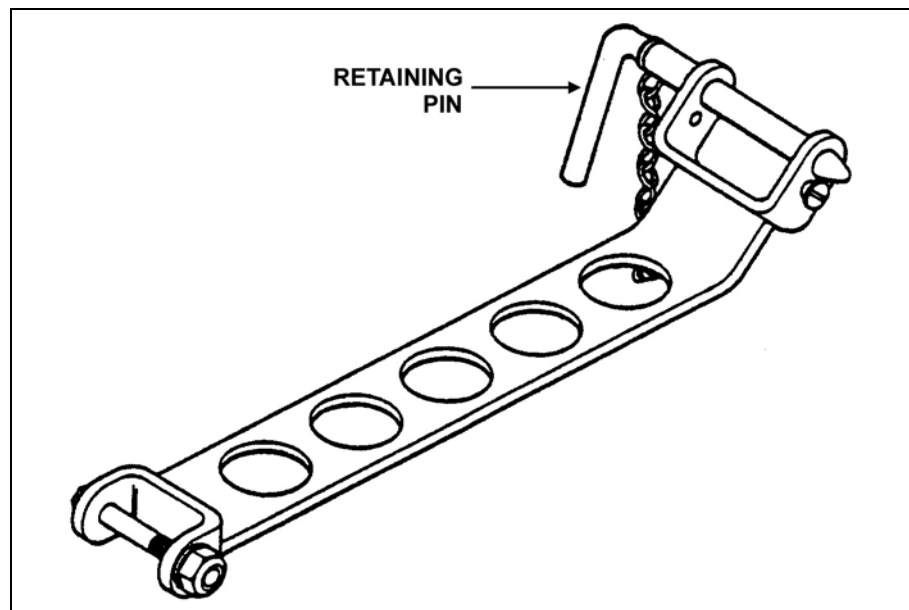


Figure 3-16. Travel lock adapter.

(5) **Travel Lock Bracket.** This bracket allows the travel lock adapter to be used with the M4 pedestal mount. It has two halves that are secured around the pedestal with nuts and bolts. The bracket is attached to the travel lock adapter by aligning the lower holes (Figure 3-17).

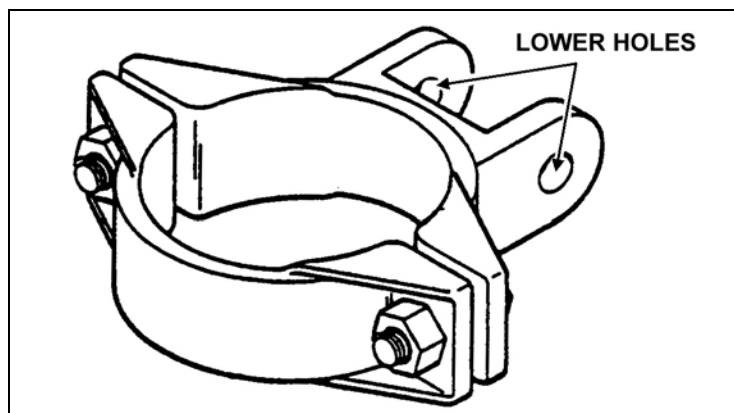


Figure 3-17. Travel lock bracket.

(6) ***Bracket Mounting Assembly.*** This assembly supplies a mount for the M548 metal ammunition container. It has a metal frame that attaches to the gun cradle, and a retaining pin that inserts through the top-inner end of the M548 ammunition container (Figure 3-18).

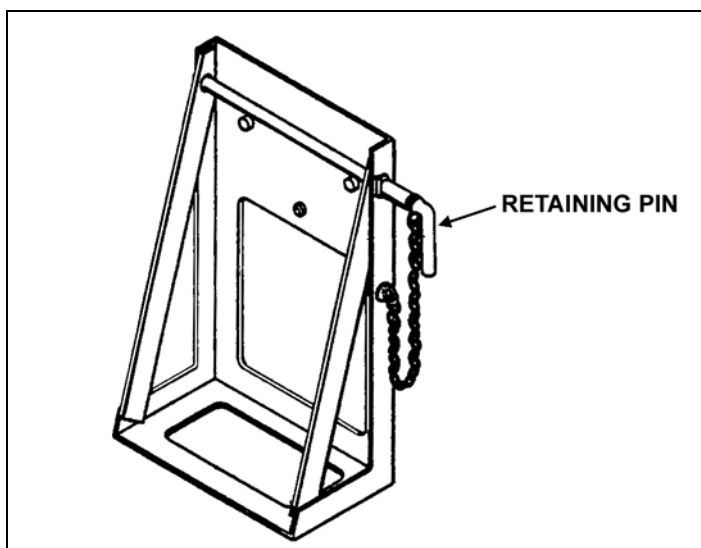


Figure 3-18. Bracket mounting assembly.

(7) **Empty Case Catch Bag.** This rubberized canvas bag catches empty cartridge cases as they are ejected. It is held in place by a metal rim, which attaches to the bottom of the cradle under the receiver by two hooks and a hanger (Figure 3-19).

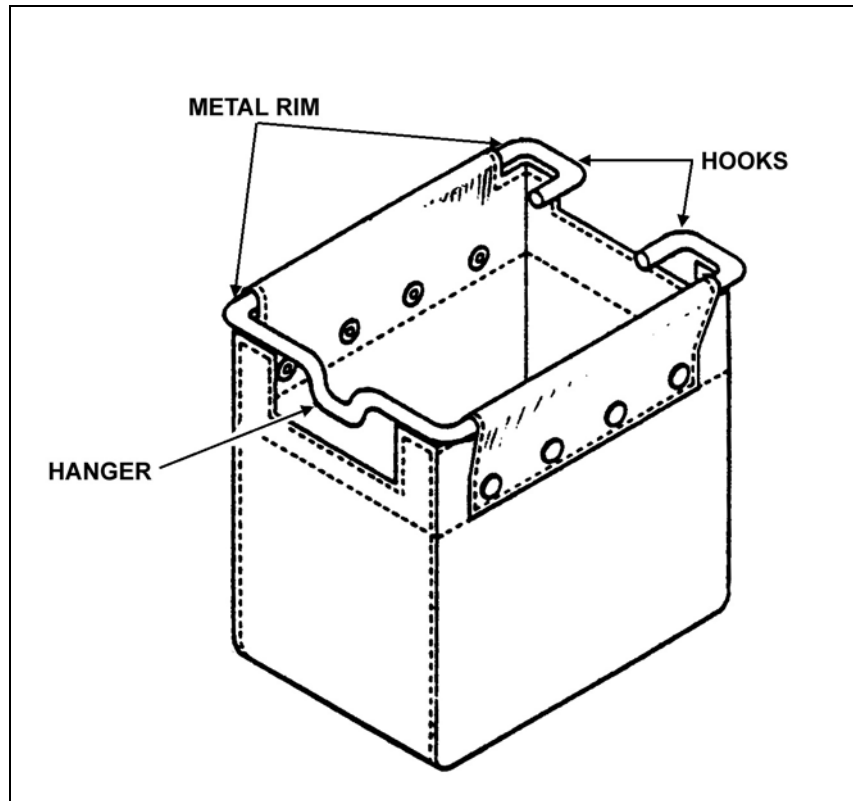


Figure 3-19. Empty case catch bag.

NOTE: The 9/16-, 7/16-, and 3/8-inch open-end wrenches are necessary tools to mount the MK 19 on vehicles.

b. **Vehicle Mounts.** Various vehicle mounts can be used with the MK 19.

(1) **HMMWV Weapon Platform.** To mount the MK 19 on the HMMWV weapon platform (Figure 3-20):

(a) Insert the pintle adapter onto the HMMWV pedestal by following these procedures:

(1) Loosen the HMMWV pedestal lock screws by turning counterclockwise until the threaded ends are flushed with the pedestal's inner wall (Figure 3-20).

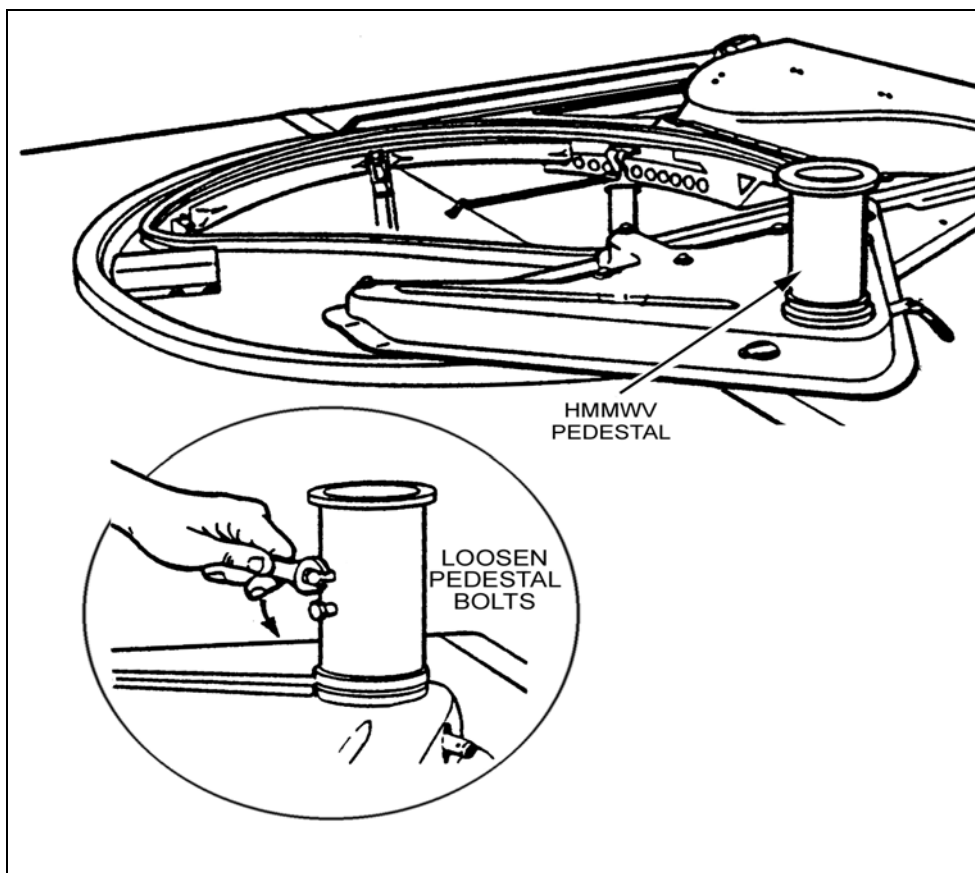


Figure 3-20. HMMWV pedestal.

(2) Insert the pintle adapter assembly by placing the lower end of the pintle adapter into the HMMWV pedestal (Figure 3-21).

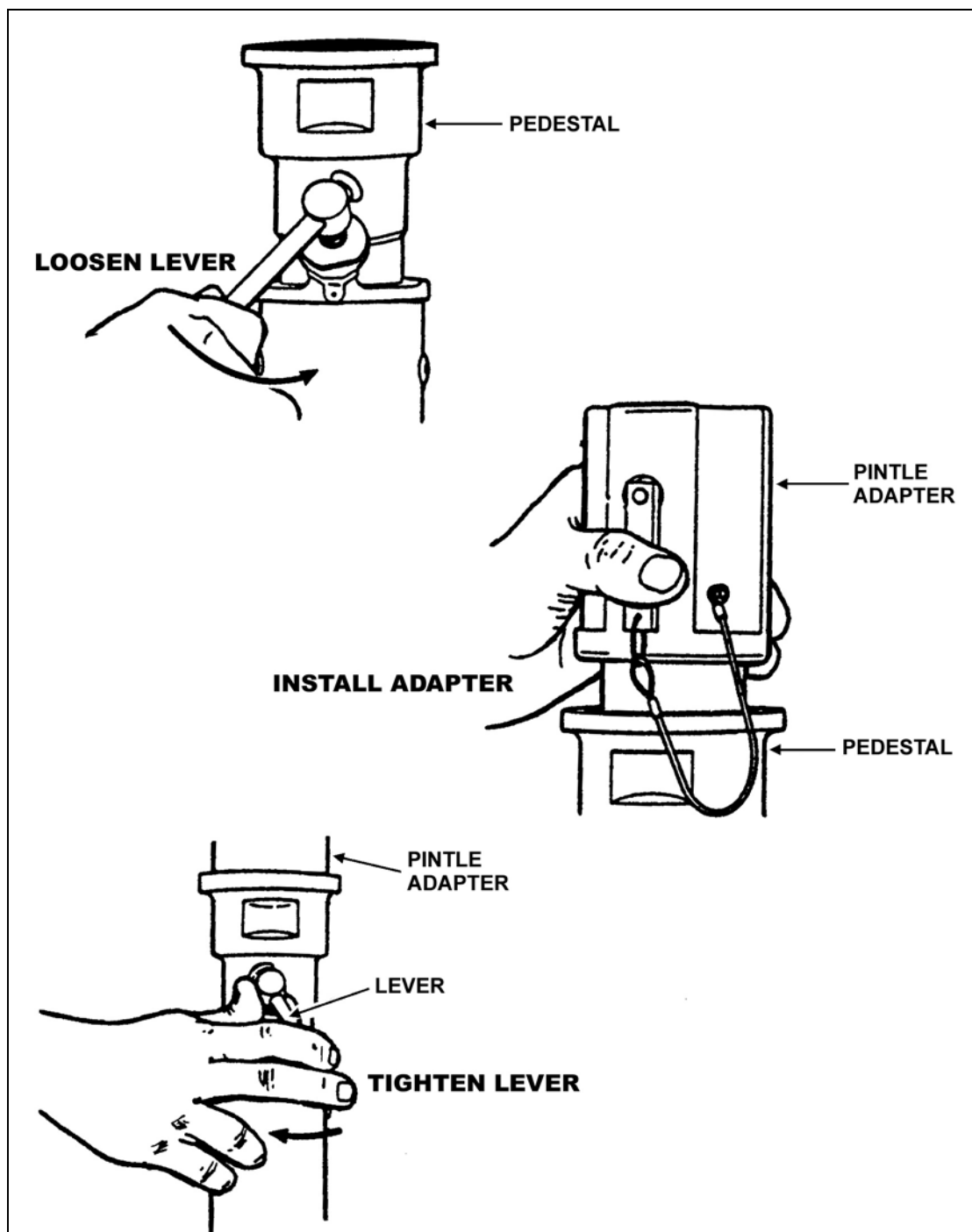


Figure 3-21. Pintle adapter assembly.

(3) Tighten the lock screws with a 3/8-inch open-end wrench. Pull upward on the pintle adapter to ensure it is secured in place.

- (4) Remove the pintle adapter quick-release by pressing in on the pin's quick-release button and pulling the pin from the pintle adapter.
- (b) Install the carriage and cradle assembly by following these procedures (Figure 3-22):
- (1) Insert the front stow pin to prevent relative movement to the carriage and cradle.
 - (2) Insert the carriage pintle into the top of the pintle adapter assembly.
 - (3) Press in on the pin's quick-release button and insert the pin.
 - (4) Pull upward and twist the carriage and cradle assembly. It should lock into the pintle adapter, but it should traverse freely left and right.

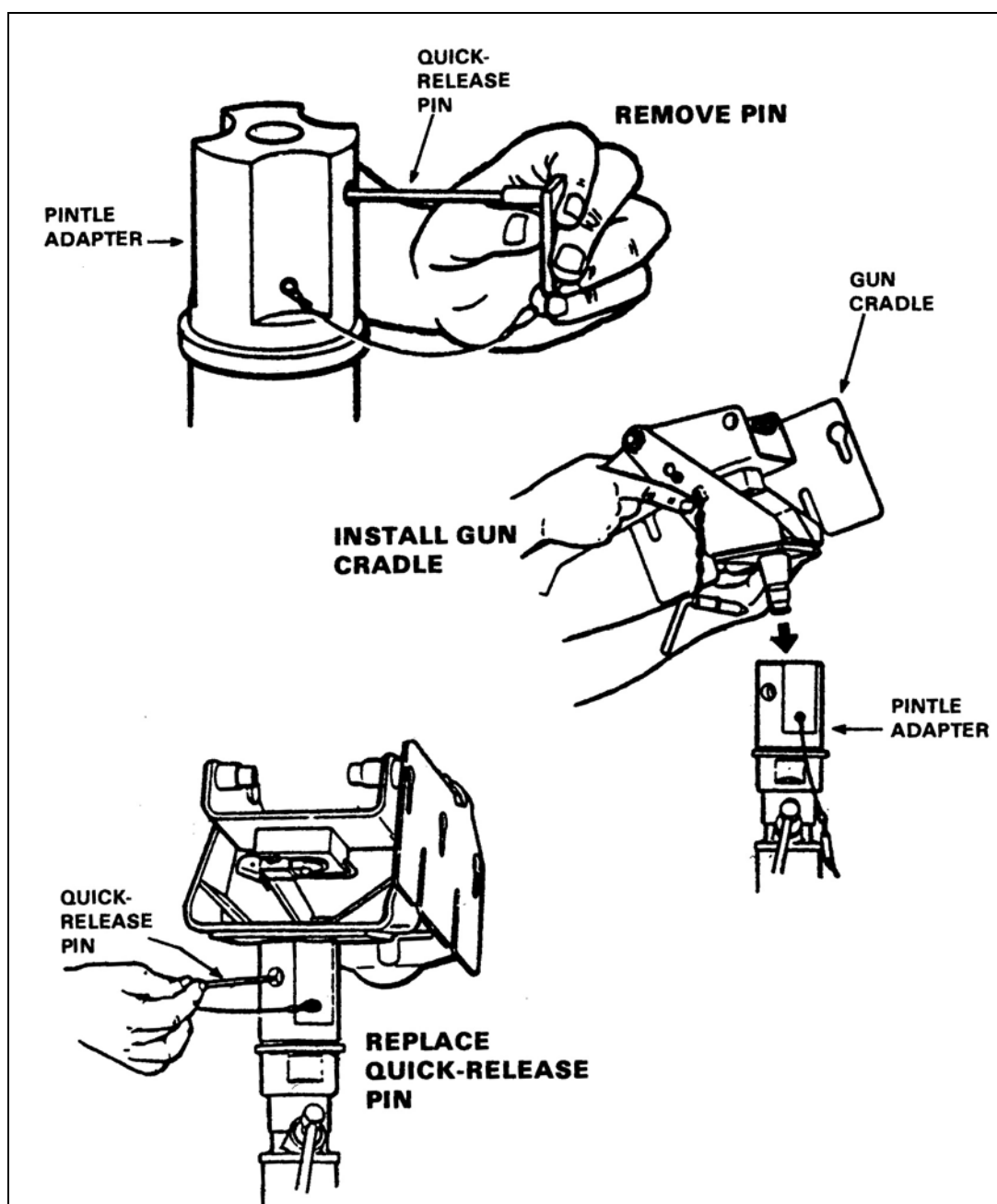


Figure 3-22. Install the carriage and cradle assembly.

(c) Install the T&E mechanism in the train and elevation assembly by following these procedures:

- (1) Turn the elevating handwheel to read 250 mils.
- (2) Loosen the pivot arm screws, using two 7/16-inch open-end wrenches.
- (3) Insert the T&E mechanism all the way into the train and elevation assembly.

NOTE: The T&E mechanism is the upper portion of the training and elevation assembly; it must be installed in the train and elevation assembly *before* the training and elevation assembly can be installed on the vehicle.

(4) Position the traversing lock lever to the rear and the traversing knob to the left by tightening the pivot arm screws, using the two wrenches.

(d) Separate the middle clamp on the train and elevation assembly by following these procedures:

- (1) Unscrew the train lock handle counterclockwise to remove.
- (2) Using the 9/16-inch open-end wrench, remove the hex head screw on the other side of the middle clamp.

(e) Attach the train and elevation middle clamp to the HMMWV pedestal post by following these procedures (Figure 3-23):

- (1) Assemble the middle clamp around the pedestal.
- (2) Tighten the clamp by turning the train lock handle clockwise.
- (3) Using the 9/16-inch open-end wrench, equally tighten the screw on the other side of the middle clamp.

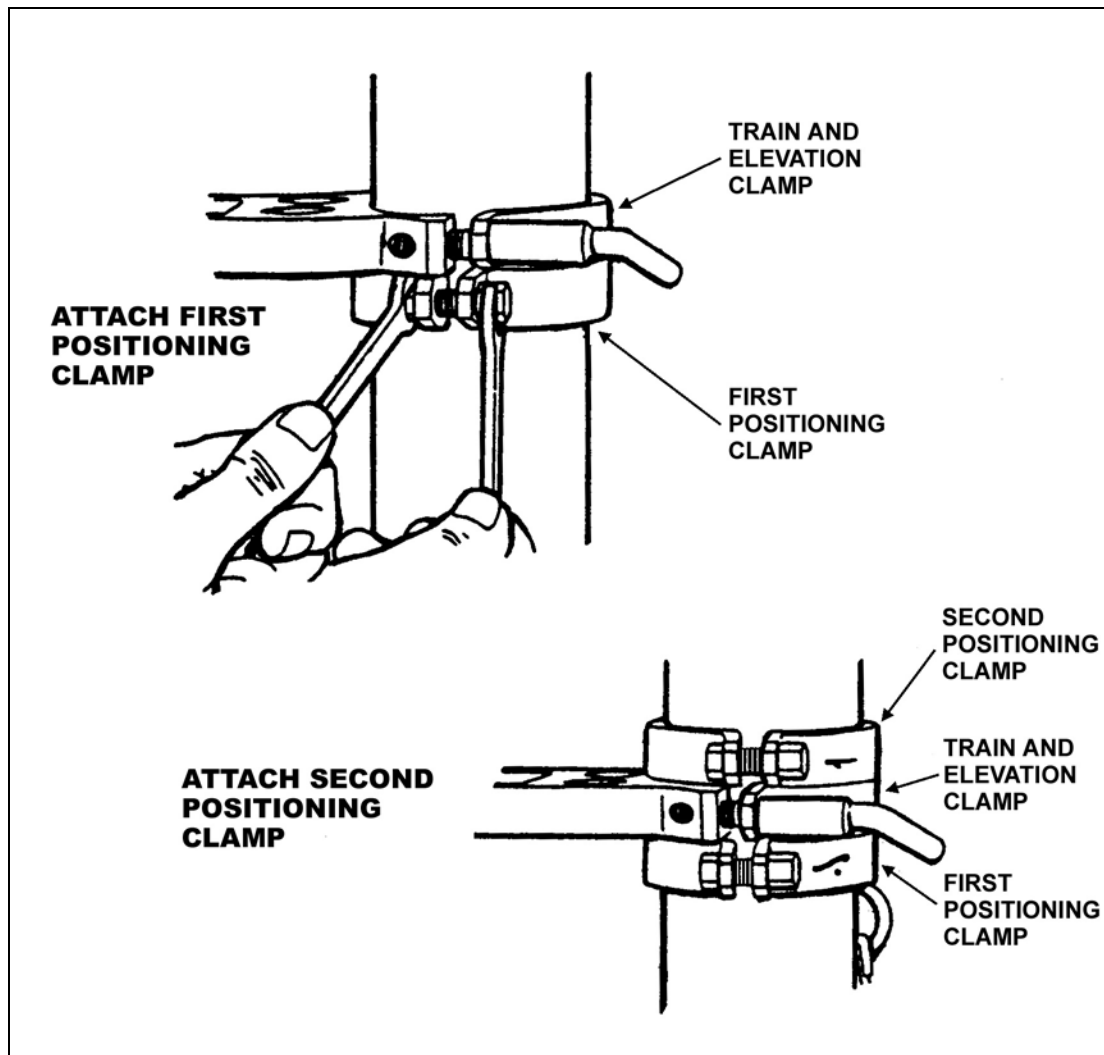


Figure 3-23. Train and elevation middle clamp.

(f) Install a support clamp above the middle clamp. To allow free left and right traverse of the carriage and cradle assembly, loosen the train lock handle. To lock in place, tighten the handle.

NOTE: The second or lower set of clamps is not used in this application since the train lock rests on the built-up base of the HMMWV pedestal. This will also allow for increased elevation. Using two 9/16-inch open-end wrenches, fasten one set of clamps above the middle clamp. Tighten each screw two turns until snug.

(g) Attach the train and elevation assembly to the carriage and cradle assembly by following these procedures:

- (1) Pull out the front stow pin to allow the cradle to move.
- (2) Pull out the train and elevation assembly's retaining pin.

(3) Ensure the elevating handwheel is set at 250 mils. Position the lock lever to the rear and ensure the traversing knob is on the left.

(4) Turn the traversing knob to center the elevating screw in the yoke.

NOTE: Ensure the elevating handwheel does not get jammed under the lip of the cradle.

(5) Turn the elevating handwheel to align the elevating mechanism holes with the lower rear holes in the cradle.

(6) Insert the retaining pin and rotate to the locked position.

(h) Mount the ammunition can bracket by following these procedures:

(1) Partly unscrew the wing nut on the threaded stud of the bracket mounting assembly. Align the stud with the forward groove in the gun cradle's side plate. Push the bracket mounting assembly up until the heads of the two mounting pins align with the two forward keyholes. Push the heads of the two mounting pins into the keyholes and allow the bracket mounting assembly to slide down. Tighten the wing nut behind the side plate of the cradle (Figure 3-24).

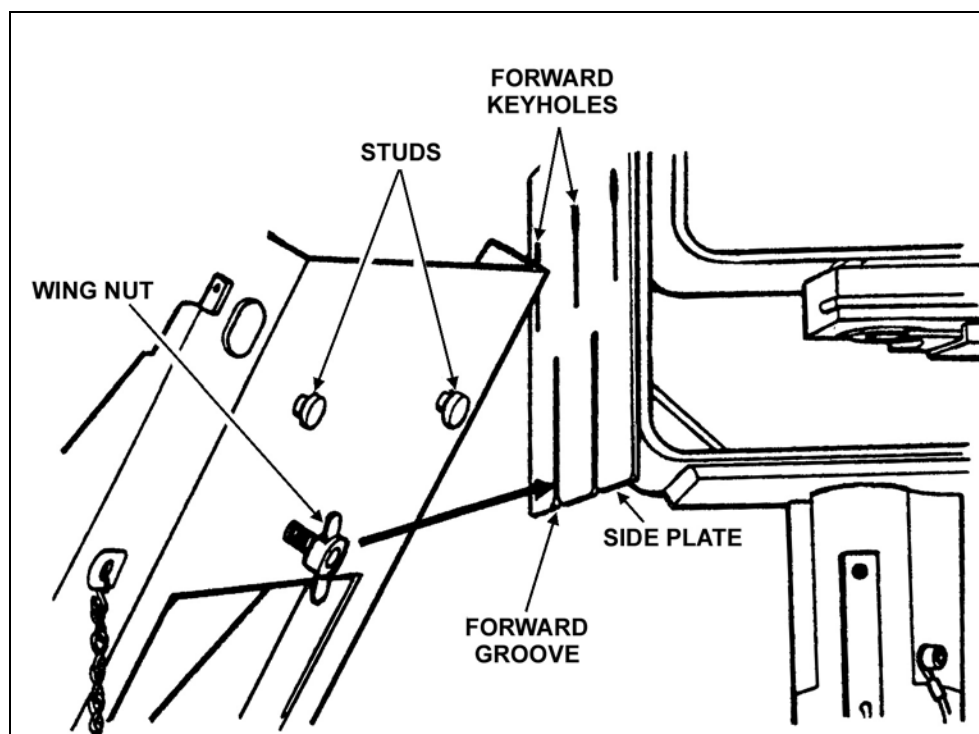


Figure 3-24. Attachment of bracket mounting assembly.

(2) Insert the two hooks on the empty case catch bag through the rear holes in the gun cradle. Engage the single front hanger on the catch bag with the hook on the gun cradle (Figure 3-25).

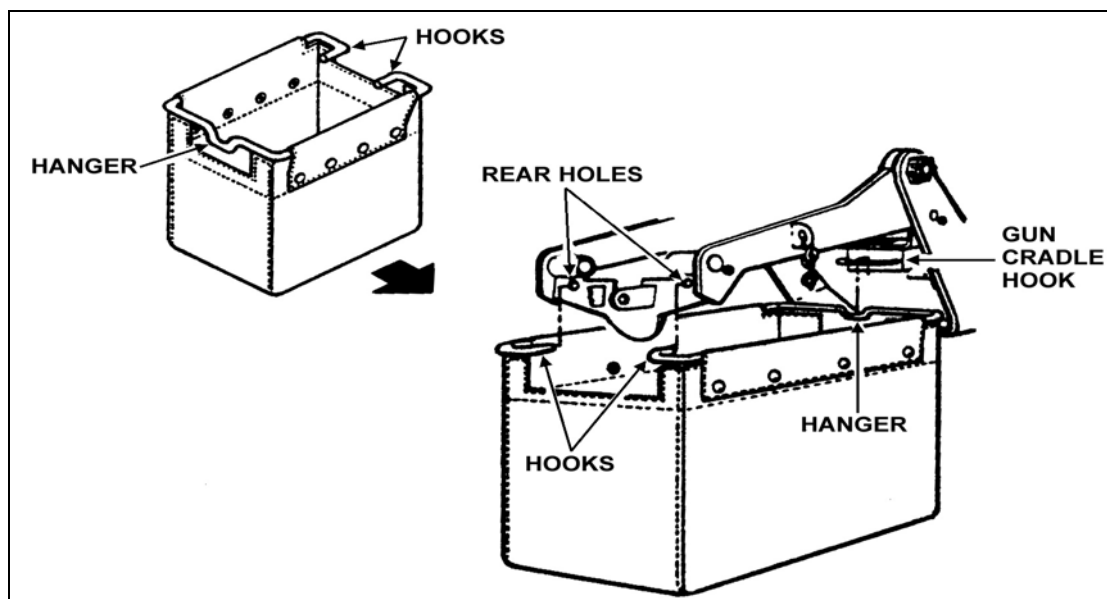


Figure 3-25. Attachment of empty case catch bag.

(2) **M66 Ring Mount (2 1/2- to 5-ton cargo trucks).** To mount the MK 19 on the M66 ring mount:

- (a) Insert the pintle adapter into the M36A2 ring mount with the M66 ring receptacle.
- (b) Install the gun cradle and mount the MK 19.
- (c) Attach the bracket mounting assembly and the empty case catch bag.

(3) **Commander's Cupola (M113 APC).** To mount the MK 19 on the commander's cupola follow these procedures:

- (a) Install the pintle adapter and the gun cradle.
- (b) Mount the MK 19 and attach the bracket mounting assembly and the empty case catch bag.
- (c) Install the machine gun pintle adapter in the commander's cupola mount by pushing the lock handle down.
- (d) Pull the lock handle up, if it does not come up when the pintle is installed.
- (e) Insert the front stow pin to prevent relative movement of the carriage and cradle.
- (f) Insert the carriage pintle into the top of the pintle adapter assembly.
- (g) Press in on the pin's quick-release button and insert the pin.
- (h) Pull upward and twist the carriage and cradle assembly. It should be locked into the pintle adapter, but it should traverse freely left and right.
- (i) To remove, reverse the steps.

(4) **The M88 Recovery Vehicle Mount.** To mount the MK 19 on the M88 recovery vehicle mount follow these procedures:

- (a) Loosen the traverse locking screw.
 - (b) Install the machine gun pintle in the machine gun mount.
 - (c) Insert the front stow pin to prevent movement of the carriage and cradle. Insert the carriage pintle into the top of the pintle adapter assembly.
 - (d) Press in on the pin's quick-release button and insert the pin.
 - (e) Pull upward and twist the carriage and cradle assembly. It should be locked into the pintle adapter, but it should traverse freely left and right.
 - (f) To remove, reverse the steps.
- (5) **Weather Cover.** To install the weather cover on the MK 19 follow these procedures:
- (a) Unzip the zipper on the weather cover.
 - (b) Pull the weather cover over the barrel, ammunition can, and rear of the MK 19.
 - (c) Zip the zipper to secure.

NOTE: The weather cover for the MK 19 is an auxiliary component not common to all MK 64 mounts.